



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,042	01/09/2004	Mou-Shiung Lin	JCLA8533-D2	8665

27765 7590 01/04/2007  
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION  
P.O. BOX 506  
MERRIFIELD, VA 22116

EXAMINER
----------

FENTY, JESSE A

ART UNIT	PAPER NUMBER
----------	--------------

2815

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/755,042

Applicant(s)

LIN ET AL.

Examiner

Jesse A. Fenty

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 163-208 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 179-208 is/are allowed.
- 6) ☒ Claim(s) 163-165 and 167-178 is/are rejected.
- 7) ☒ Claim(s) 166 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 163-165 and 167-178 are rejected under 35 U.S.C. 102(e) as being anticipated by Eichelberger et al. (U.S. Patent No. 6,396,148 B I).

In re claim 163, Eichelberger (e.g., Fig. 1) discloses an electronic package comprising:

a substrate (101/104) comprising silicon (column 10, line 1);

a die (102) joined with said substrate; and

an upper metallization structure over said die, wherein said upper metallization structure comprises an electroplated metal (column 4, lines 47-49), wherein said upper metallization structure comprises a portion connecting said multiple internal circuits and used to provide a ground voltage (column 5, line 31)

In re claim 164, Eichelberger discloses the devices of claim 163, wherein a cavity is in said substrate and accommodates said die, said die having a bottom surface joined with the bottom of said cavity.

In re claim 165, Eichelberger discloses the device of claims 163, wherein said substrate has a top surface (of 101) comprising a first region and a second region (below 104), said die joined with said first region, said second region not covered by said die, said

Art Unit: 2815

first region being coplanar with said second region.

In re claim 166, Eichelberger discloses the device of claims 163, wherein an opening in said substrate accommodates said die, said substrate having a top surface (at 104) coplanar with a top surface of said die.

In re claim 167, Eichelberger discloses the device of claims 163, further comprising a polymer layer (106; column 6, line 29) under a metal layer (108) of said upper metallization structure.

In re claim 168, Eichelberger discloses the device of claim 163, further comprising a polymer layer (106; column 6, line 29) over a metal layer (107) of said upper metallization structure.

In re claim 169, Eichelberger discloses the device of claim 163, wherein said die has a top surface at a horizontal level, said substrate being under said horizontal level, said upper metallization structure being over said horizontal level.

In re claim 170, Eichelberger discloses the device of claim 169, wherein said top surface comprises multiple pads.

In re claim 171, Eichelberger discloses the device of claim 169, further comprising a passive device over said horizontal level.

In re claim 172, Eichelberger discloses the device of claim 163, wherein said metallization structure further extends across an edge of said die and to a place not over said die.

In re claim 173, Eichelberger discloses the device of claim 163, further comprising an adhesive tape (103) joining said die and said substrate.

Art Unit: 2815

In re claim 174, Eichelberger discloses the device of claim 163, further comprising a conductive paste (103) joining said die and said substrate.

In re claim 175, Eichelberger discloses the device of claim 163, further comprising a bump (110) on a pad (114) of said upper metallization structure, wherein said bump comprises solder (column 8, line 44).

In re claim 176, Eichelberger discloses the device of claim 163, further comprising a bump (110) on a pad (114) of said upper metallization structure, wherein said bump comprises gold (column 9, lines 37-57).

In re claim 177, Eichelberger discloses the device of claim 163, further comprising a film layer (106) over said substrate and surrounding said die.

In re claim 178, Eichelberger discloses the device of claim 177, wherein said film layer comprises polymer.

### ***Allowable Subject Matter***

Claims 179 – 208 are allowed over the prior art of record.

Claim 166 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed 09/22/06 have been fully considered but they are not persuasive.

Response to arguments to claims 163-178.

Applicant amends claim 166 in an effort to distinguish over the prior art. However, the amendment, and applicant's subsequent arguments do not accomplish the purpose.

In the NF Rejection, examiner has identified two layers (101 and 104) as being the claimed "electronic package." Applicant has tried to limit the meaning of this term by changing said limitation to the word, "chip." However, this change does not change examiner's interpretation of the art. A "chip" as well as an "electronic package" can both comprise multiple layers of wafer and substrate. This is exactly the case here. More definite claim language must be added if applicant wishes to distinguish each layer from the other.

Therefore, the substrate layer is still the combination of the layers (101 and 104), with the upper layer being specifically silicon. Although the wafer (101) is not explicitly labeled as silicon, it is inherently so. Because silicon is the most commonly used substrate in the semiconductor art, one skilled in the art would almost always define an alternative substrate material, if that alternative material is being used. Else, silicon can universally be assumed to be the substrate of choice, without impugning any other substrate material, nor losing out on the performance of a device. Also, since an upper layer is deemed to be silicon, it is highly likely the bottom layer is as well.

Art Unit: 2815

Second, applicant argues that Eichelberger cites electroless metal, and not electroplated metal. Examiner states that for the purpose used here, the terms are synonymous.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on M-F 5/4.

Art Unit: 2815

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JAF

  
JEROME JACKSON  
PRIMARY EXAMINER